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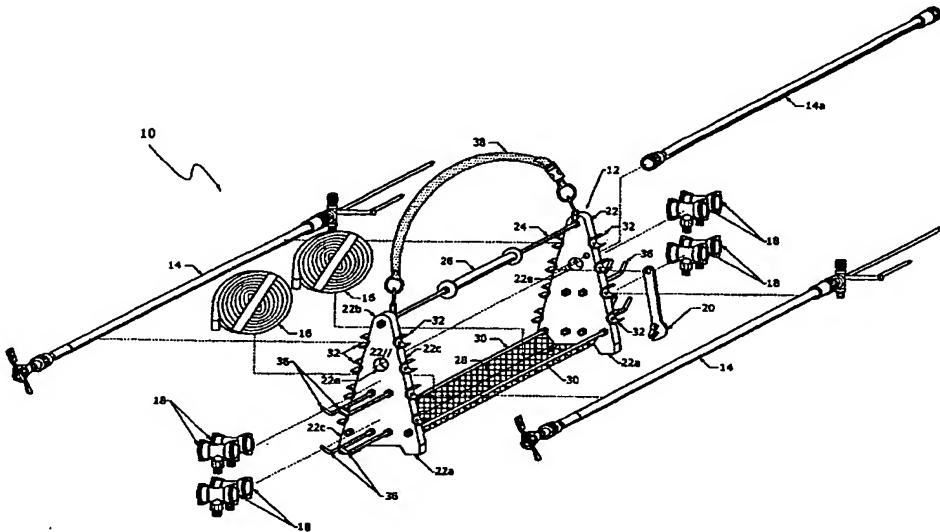
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(54) Title: FIREFIGHTING SYSTEM



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(57) Abstract: A fire fighting system includes a rack having open sides for carrying sprinklers on the outsides and hoses within. The rack has a generally enclosed pair of rigid ends, a lower rigid floor and an upper rigid brace, wherein the pair of rigid ends are mounted in spaced apart relation on opposite ends of the floor and the brace. Releasable mounting means are mounted on the pair of rigid ends for releasably mounting a plurality of elongate sprinklers across spaced apart sides of the open sides of the rack so as to form, when the sprinklers are mounted thereon, rigid side walls covering the spaced apart sides of the open sides. This defines an enclosed storage cavity within the rack bounded by the ends, the side walls, the floor and the brace. The storage cavity is sized for storage of the coiled hoses therein.



- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

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## FIREFIGHTING SYSTEM

Field of the Invention

5 This invention relates to the field of devices for fighting fires and in particular to an improved system for transporting and deploying an array of water sprinklers.

Background of the Invention

10 It is known in the prior art such as International Patent Application No. PCT/FR90/00971 having an International Publication No. WO91/09649 published July 11, 1991, for an Automatic Device for Fighting Forrest Fires, to provide a supply of pressurized water through conduits such as buried pipes to supply a plurality of columns on top of which are mounted water diffusers.

15

It is also known in the prior art to use water sprinklers as a defensive measure to protect buildings and property from the encroachment of fire for example as disclosed in United States Patent No. 3,576,212 which issued April 27, 1971 to Siler for a Fire-Shielding Device, United States Patent No. 5, 165,482 which issued November 24, 1992 to Smagac et al. for A Fire 20 Deterrent System For Structures in a Wildfire Hazard Area, United States Patent No. 5,692,571 which issued December 2, 1997 to Jackson for a Building Exterior Fire Prevention System, and United States Patent No. 6,360,968 which issued March 26, 2002 to Orrange et al. for A Wildfire Protection System.

25

What is not addressed in the prior art is the need to be able to manually transport firefighting sprinklers and the corresponding hoses and couplings from a crew access point such as a helicopter landing zone through the brush to the location of the fire break along which fire suppression sprinklers may be employed. In the prior art of which applicant is aware in the field of manually transportable fire suppression devices, applicant is only aware of the fire suppressor,

which basically comprises a tank containing fire suppressant configured to be worn by a user as disclosed in United States Patent No. 5,0180,584 which issued May 28, 1991 to Tomlinson for a Fire Suppressor.

5                   In the prior art relating to carrying devices, applicant is aware of United States Patent No. 4,526,414 which issued July 2, 1995 to Jones for a Foldable Carrying Device, and United States Patent No. 4,779,914 which issued October 25, 1988 to Friedline for a Display and Carrying Rack for Fishing Equipment, neither of which devices are adapted for carrying fire suppression equipment in the manner disclosed herein.

10

#### Summary of the Invention

15                   In summary, the fire fighting system of the present invention includes a rack having open sides for carrying sprinklers on the outsides and hoses within. The rack has a generally enclosed pair of rigid ends, a lower rigid floor and an upper rigid brace, wherein the pair of rigid ends are mounted in spaced apart relation on opposite ends of the floor and the brace. Releasable mounting means are mounted on the pair of rigid ends for releasably mounting a plurality of elongate sprinklers across spaced apart sides of the open sides of the rack so as to form, when the sprinklers are mounted thereon, rigid side walls covering the spaced apart sides of the open sides.

20                   This defines an enclosed storage cavity within the rack bounded by the ends, the side walls, the floor and the brace. The storage cavity is sized for storage of the coiled hoses therein.

25                   In one embodiment the rigid ends are each generally planar and are substantially parallel to one another. Oppositely disposed pairs of cantilevered members may be mounted to and extend from the pair of rigid ends for releasable mounting of water-flow diverting T-couplers thereon. The pairs of cantilevered members may be parallel elongate prongs.

The releasable mounting means may include a plurality of resilient clamps mounted in oppositely disposed relation to opposite edges of the ends. The clamps may include a spaced

apart array of clamps mounted along each side edge of the edges of the ends. Each end may be generally triangular. The brace may be mounted at a vertex of each end. The brace may be adapted to form a carrying handle. A flexible shoulder strap may be mounted at its ends to the rigid ends, for example at the vertex of each end.

5

The floor may form a concave shelf and may be a mesh.

10 The ends may be spaced apart a distance so that, advantageously, distal ends of the pairs of cantilevered members, distal from the rigid ends, do not extend beyond the opposite ends of the sprinklers when mounted in the releasable mounting means.

#### Brief Description of the Drawings

15 Figure 1 is, in partially exploded view, the firefighting system according to the present invention.

Figure 2 is, in non exploded side view, the firefighting system of Figure 1.

20 Figure 3a is, in side elevation view, the rack of the firefighting system according to Figure 1.

Figure 3b is, in end elevation view, the rack of Figure 3a.

Figure 4a is, in side elevation view, a stack of the racks according to Figure 3a.

25

Figure 4b is, in end elevation view, the stack of racks of Figure 4a.

Figure 5a is, in front elevation view, one of the water sprinklers of the firefighting system according to Figure 1.

Figure 5b is, in side elevation view, the water sprinkler of Figure 5a.

Figure 6a is, in front elevation view, a hose T-coupling of the firefighting system  
5 according to Figure 1.

Figure 6b is, in side elevation view, the T-coupling of Figure 6a.

Detailed Description of Embodiments of the Invention

10

As seen in Figures 1 and 2, the fire fighting system 10 according to the present invention includes a rack 12 for carrying water sprinklers 14, hoses 16, T-couplers 18 so called "water thieves", and tools such as wrench 20.

15

Rack 12 has generally triangular plates 22 disposed vertically at opposite ends of an upper rigid carrying member 24 having a handle 26 mounted thereon, and a lower basket channel 28 mounted to, so as to extend between a pair of rigid supporting struts 30 mounted to end plates 22 so as to extend therebetween parallel to carrying member 24.

20

End plates 22 are disposed so that their wider ends 22a form a base and feet for the rack when resting on the ground, and where the pointed or vertex ends 22b of their triangular shape are at the upper end of the rack corresponding to carrying member 24. Side edges 22c extend along the perimeter of the triangular shape of end plates 22 so as to extend between vertex ends 22b and wider ends 22a. Resilient clips 32 are mounted in spaced apart array along side edges 22c aligned so as to releasably secure the tubular posts of sprinklers 14 when resiliently clipped in parallel array into opposite pairs of clips 32 on opposite end plates 22. Thus in the embodiment of Figure 1, rack 12 may hold up to eight sprinklers 14 clipped into clips 32, it being understood that in Figure 1 only two sprinklers 14 are shown for mounting in clips 32, and in Figure 2 only four sprinklers 14 are shown mounted along one side of rack 12 so as to not clutter

the views. However, with four sprinklers 14 mounted on each side of end plates 22, a central storage cavity is defined bounded by the sprinklers 14, end plates 22, basket channel 28, and carrying member 24.

5                   As seen in Figure 2, rolled up hoses 16 may be stored in basket channel 28 as also may be other items such as small container 34. Although not intended to be limiting, it is not necessary that T-couplers 18 be stored for transport and storage within basket channel 28 as cantilevered members 36 pairs of cantilevered members are mounted to end plates 22 so that each pair extends horizontally from each end plate 22 between the ends of sprinklers 14 extending from  
10                  clips 32. In the embodiment illustrated, members 36 are long enough so as to support thereon two T-couplers 18 in sliding engagement between and on each pair of cantilevered members 36. Consequently, in the embodiment illustrated because two pairs of cantilevered members extend from each end plate 22, in oppositely disposed relation, a total of eight T-couplers 18 may be mounted thereon. As illustrated, each cantilevered member 36 may have an upturned end so as to  
15                  inhibit T-couplers 18 from sliding off the cantilevered members.

As also seen in Figures 3a and 3b, a flexible and releasably mounted shoulder strap 38 may be clipped to securing points 22d mounted to vertex ends 22b of end plates 22. An aperture 22e may be provided in end plates 22 for example for carrying journaled therethrough a  
20                  spare sprinkler tube 14a.

As seen in Figures 4a and 4b, racks 12 may be stacked for storage of the fire fighting systems of the present invention by, in the illustrated embodiment, mounting a pair of racks 12 onto a supporting platform 40 so as to vertically stack pairs of racks 12 on top of each  
25                  other. Such vertical stacks may be stabilized by interlocking securing points 22d, which in the illustrated embodiments are oval rings rigidly mounted to vertex ends 22b so as to protrude upwardly therefrom, with corresponding apertures or grooves formed in the underside of platforms 40.

As seen in Figures 5a and 5b, each sprinkler 14 includes a cylindrical tube 14a having removably mounted on one end a sprinkler head 14b and at an opposite end a ground mounting device such as bayonet 14c. An auxiliary anchor bayonet 14d may be rigidly mounted to, spaced from, bayonet 14c so as to prevent rotation of sprinkler 14 about its longitudinal axis A when mounted in the ground. Hose couplers 14e provide for mounting sprinklers 14 between lengths of water supply hose 16. T-couplers 18 such as better seen in Figures 6a and 6b, may be employed to divert water along branch lines so as to supply water to a spaced apart pattern of a plurality of water sprinklers 14.

As will be apparent to those skilled in the art in the light of the foregoing disclosure, many alterations and modifications are possible in the practice of this invention without departing from the spirit or scope thereof. Accordingly, the scope of the invention is to be construed in accordance with the substance defined by the following claims.

## WHAT IS CLAIMED IS:

## 1. A fire fighting system comprising:

5 a rack having open sides, said rack having a generally enclosed pair of rigid ends, a lower rigid floor and an upper rigid brace, wherein said pair of rigid ends are mounted in spaced apart relation on opposite ends of said floor and said brace,

10 releasable mounting means mounted on said pair of rigid ends for releasably mounting a plurality of elongate sprinklers across spaced apart sides of said open sides of said rack so as to form, when said sprinklers are mounted thereon, rigid side walls covering said spaced apart sides of said open sides, thereby defining an enclosed storage cavity within said rack bounded by said ends, said side walls, said floor and said brace,

15 wherein said storage cavity is sized for storage of coiled hoses therein.

2. The system of claim 1 wherein said rigid ends are each generally planar.

3. The system of claim 2 wherein said rigid ends are substantially parallel to one another.

20 4. The system of claim 1 further comprising oppositely disposed pairs of cantilevered members mounted to and extending from said pair of rigid ends for releasable mounting of water-flow diverting T-couplers thereon.

25 5. The system of claim 3 wherein said pairs of cantilevered members are parallel elongate prongs.

6. The system of claim 1 wherein said floor is a mesh.

7. The system of claim 2 wherein said releasable mounting means includes a plurality of resilient clamps mounted in oppositely disposed relation to opposite edges of said ends.
- 5 8. The system of claim 1 wherein said floor forms a concave shelf.
9. The system of claim 1 wherein said brace is adapted to form a carrying handle.
10. The system of claim 9 further comprising a flexible shoulder strap mounted at its ends to said rigid ends.
11. The system of claim 7 wherein said clamps include a spaced apart array of clamps mounted along each side edge of said edges of said ends.
- 15 12. The system of claim 11 wherein each said end is generally triangular, said brace mounted at a vertex of each said end.
13. The system of claim 4 wherein said ends are spaced apart a distance so that distal ends of said pairs of cantilevered members distal from said rigid ends, do not extend beyond the opposite ends of the sprinklers when mounted in said releasable mounting means.
- 20
14. The system of claim 4 wherein said releasable mounting means includes a plurality of resilient clamps mounted in oppositely disposed relation to opposite edges of said ends.
- 25 15. The system of claim 14 wherein said ends are spaced apart a distance so that distal ends of said pairs of cantilevered members distal from said rigid ends, do not extend beyond the opposite ends of the sprinklers when mounted in said releasable mounting means.

16. The system of claim 15 wherein said pairs of cantilevered members are parallel elongate prongs.
17. The system of claim 16 wherein said rigid ends are each generally planar.
- 5 18. The system of claim 17 wherein said rigid ends are substantially parallel to one another.

Figure 1

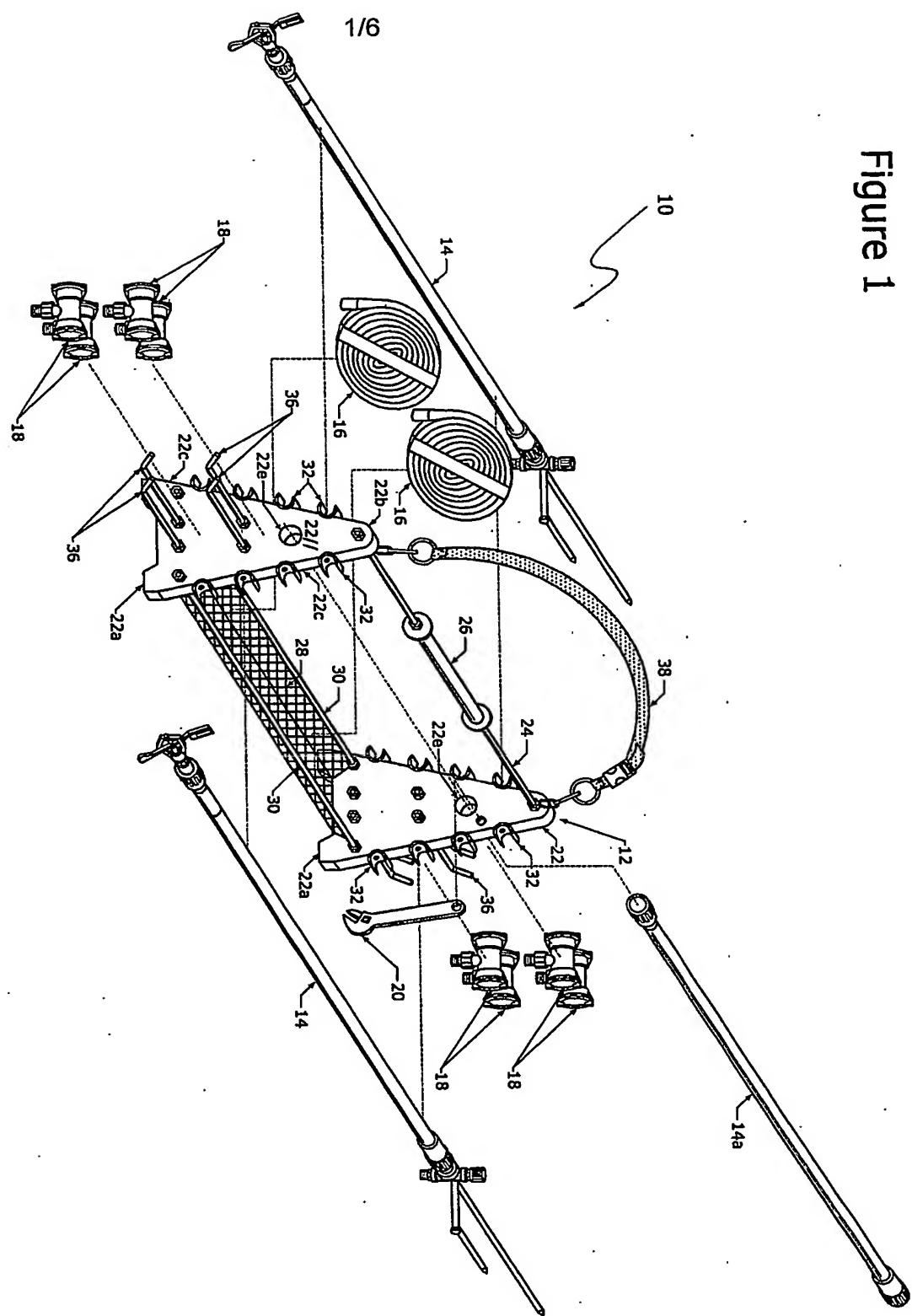


Figure 2

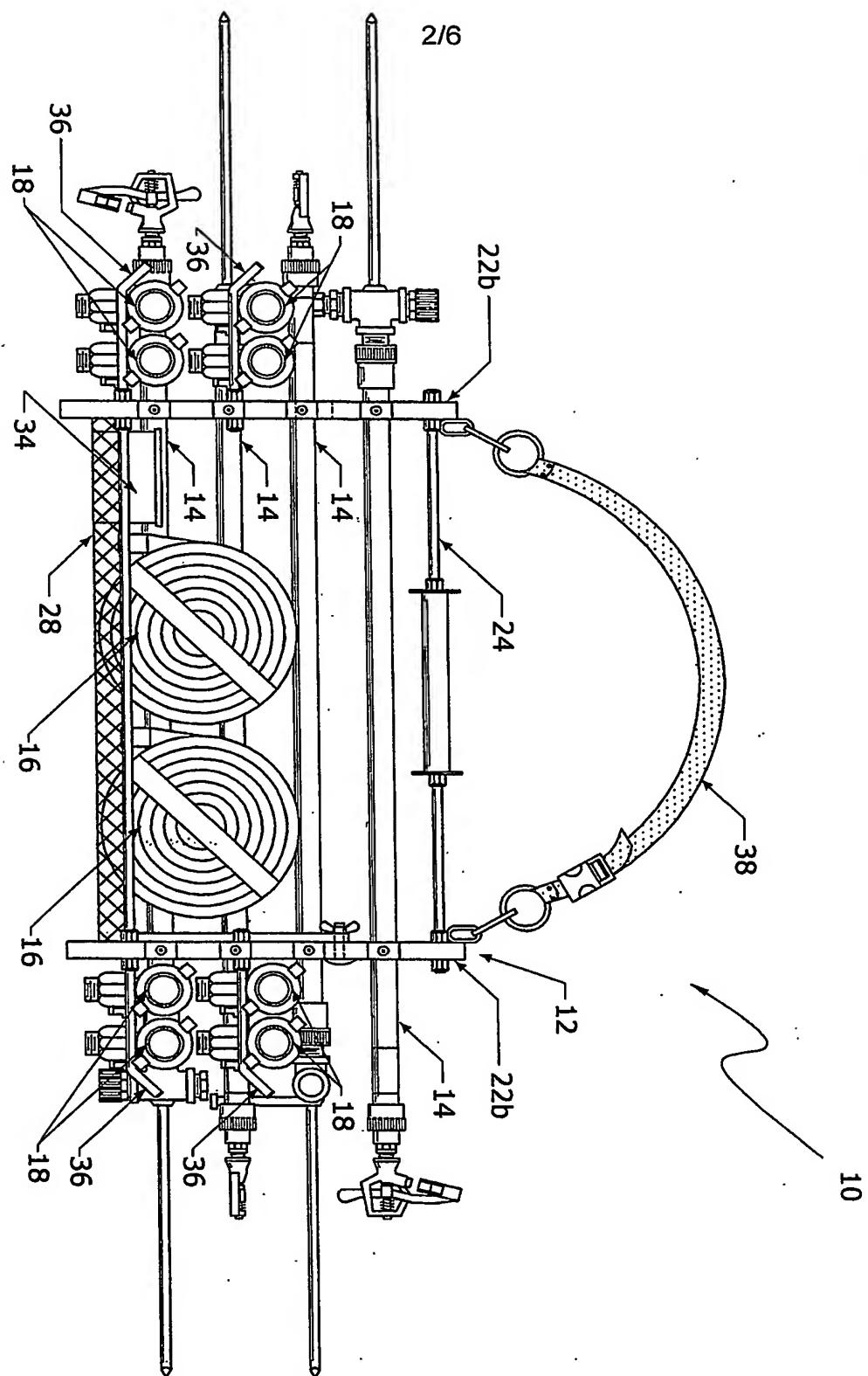


Figure 3a

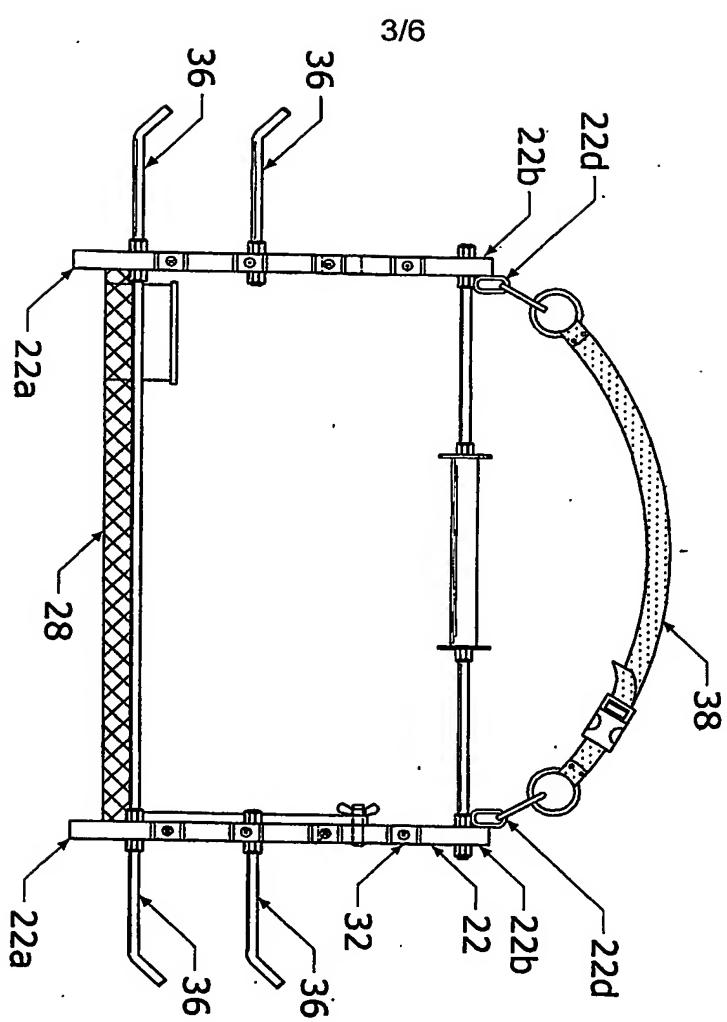
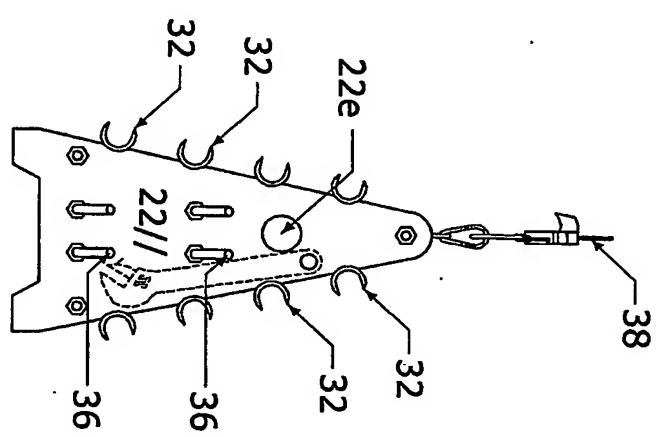


Figure 3b



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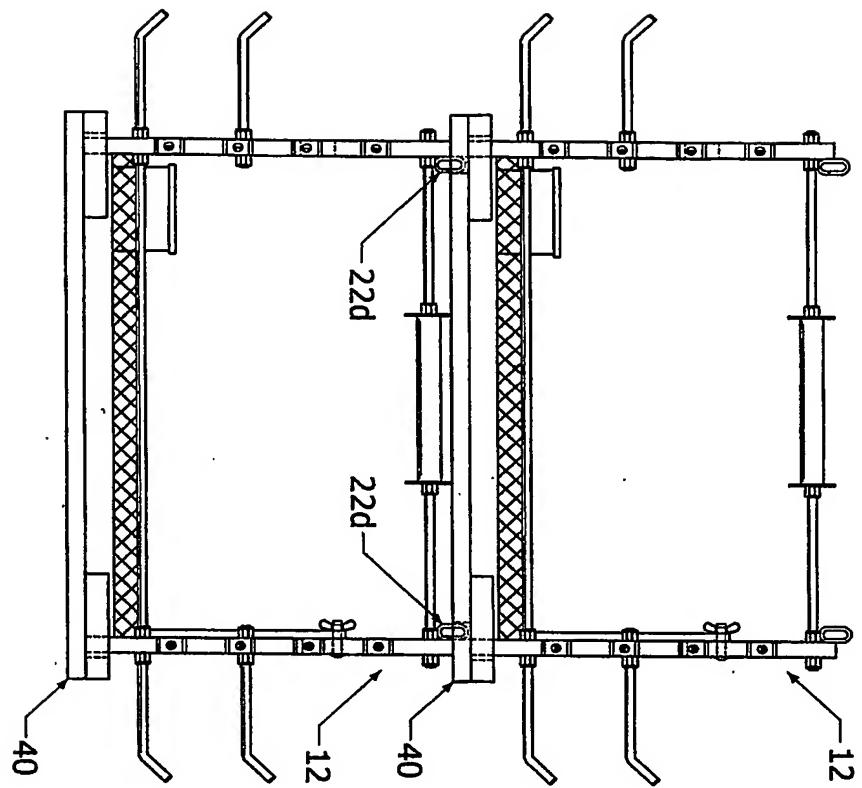


Figure 4a

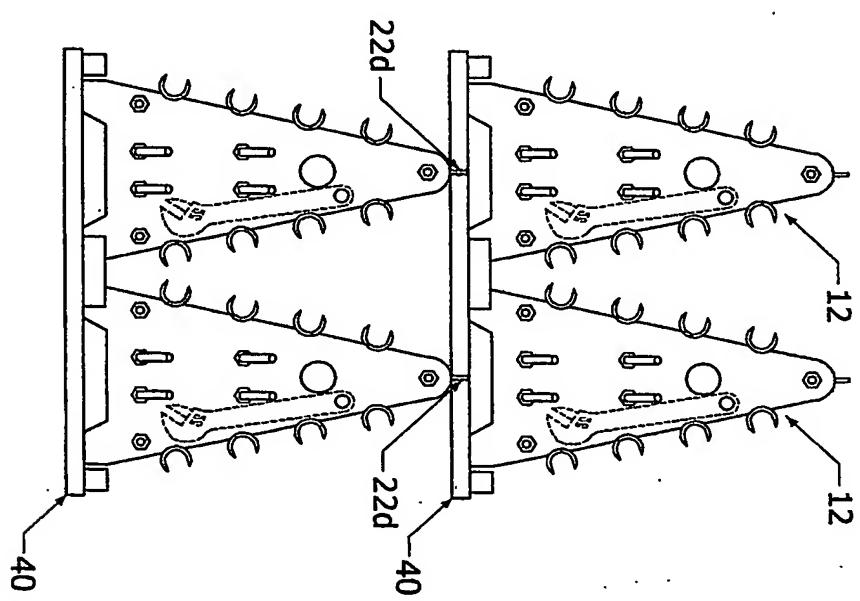


Figure 4b

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Figure 5a

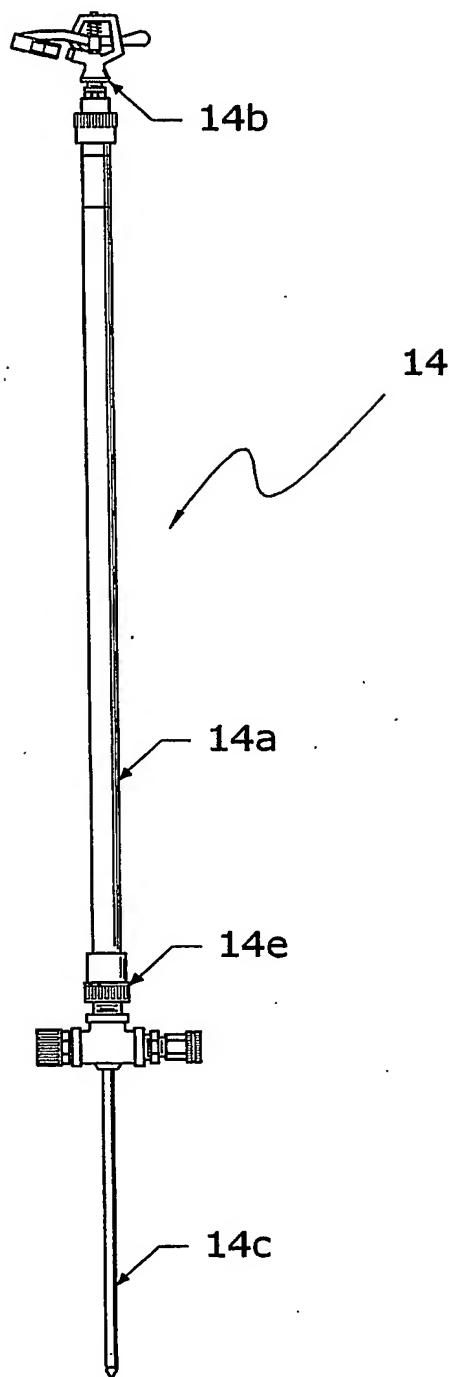
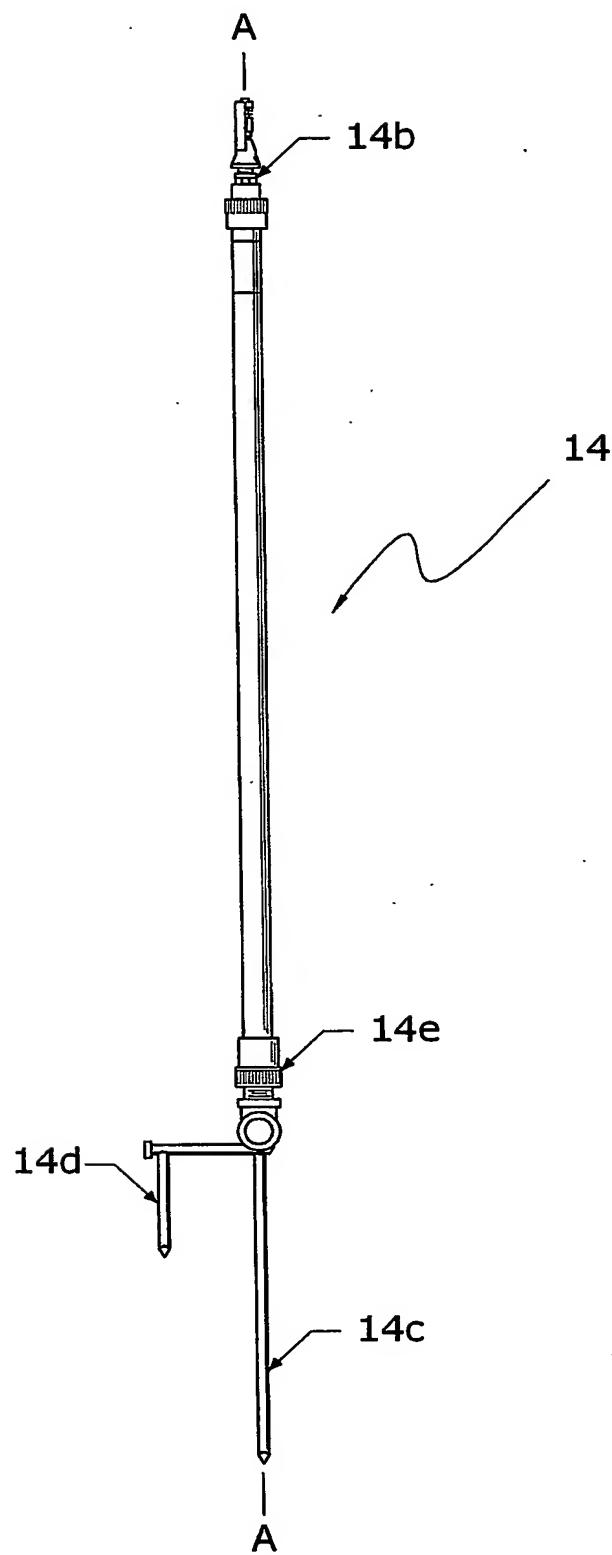


Figure 5b



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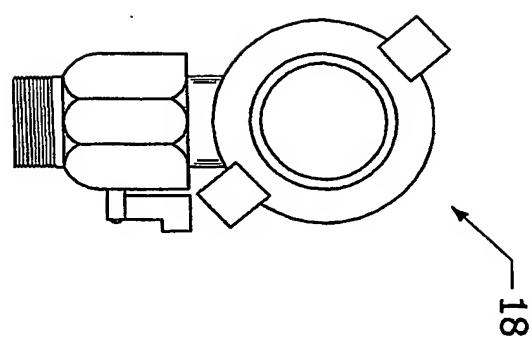


Figure 6a

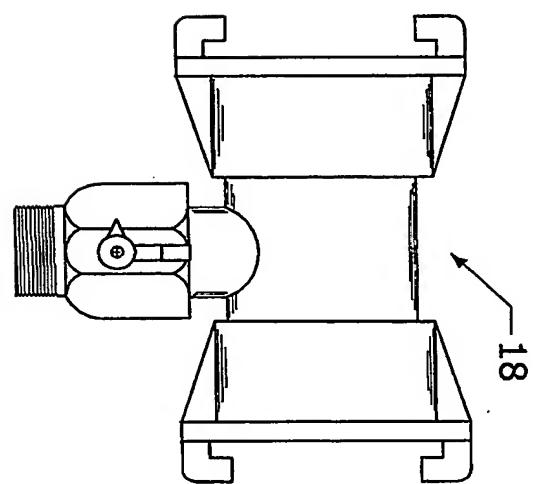


Figure 6b

## INTERNATIONAL SEARCH REPORT

International Application No

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**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 A62C33/04

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A62C A45C A45F A01K A47F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

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**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category <sup>a</sup>	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4 671 315 A (GARDNER THOMAS L) 9 June 1987 (1987-06-09) the whole document ----	1
A		2-18
Y	US 2 059 445 A (EASTMAN IVAN L) 3 November 1936 (1936-11-03) the whole document ----	1
A		2-18
A	US 1 479 447 A (BEATTIE WALTER L) 1 January 1924 (1924-01-01) the whole document ----	1
A	US 3 171 430 A (ALLEN PETERS ET AL) 2 March 1965 (1965-03-02) the whole document ----	1
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Name and mailing address of the ISA

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A	US 4 779 914 A (FRIEDLINE ROBERT W) 25 October 1988 (1988-10-25) the whole document -----	1

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Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 4671315	A	09-06-1987	NONE		
US 2059445	A	03-11-1936	NONE		
US 1479447	A	01-01-1924	NONE		
US 3171430	A	02-03-1965	NONE		
US 2418808	A	15-04-1947	NONE		
US 4366933	A	04-01-1983	NONE		
US 5579966	A	03-12-1996	NONE		
US 4526414	A	02-07-1985	NONE		
US 4779914	A	25-10-1988	CA 1294248 C		14-01-1992

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US 1479447	A	01-01-1924		NONE		
US 3171430	A	02-03-1965		NONE		
US 2418808	A	15-04-1947		NONE		
US 4366933	A	04-01-1983		NONE		
US 5579966	A	03-12-1996		NONE		
US 4526414	A	02-07-1985		NONE		
US 4779914	A	25-10-1988	CA	1294248 C		14-01-1992